GAP & Experience of Chilli Farmers of Konuru Village

Kodali C S

GLOBAL CONCERNS

- Family of Six Pollutants
  - Carbondioxide - 43.1%
  - Methane - 26.7%
  - Black Carbon - 11.9%
  - Halocarbons - 7.8%
  - Carbonmonoxide and VOC - 6.7%
  - Nitrous oxide - 3.8%

Global Warming Affects:

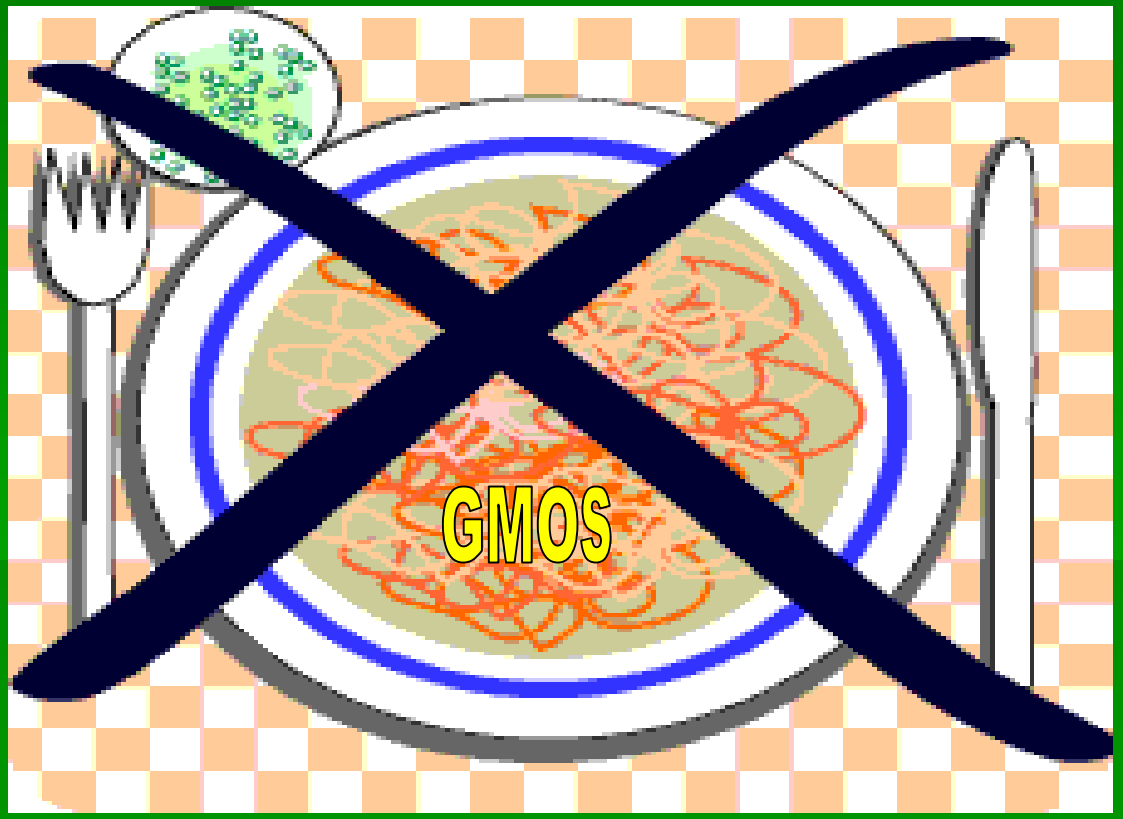
- Food Security
- Food Safety

- Resulting in acute agrarian crisis

CONTAMINATION OF FOOD

Salmonella & Dioxin in Chicken

Hormones in Meat



Acrylamide in French Fries

Pesticide Residues

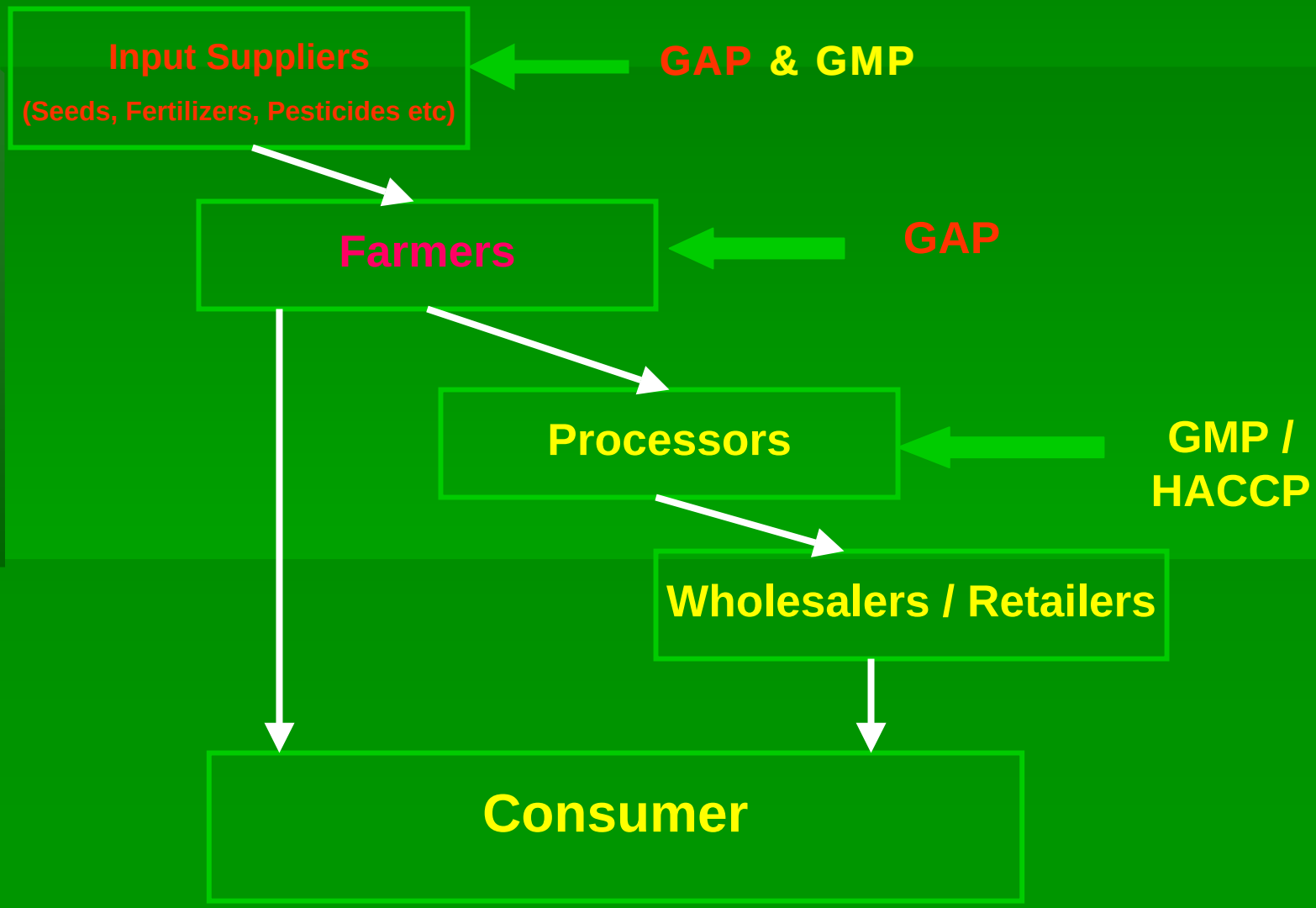
Present Scenario - India

- Lack of Traceability and Backward integration for agricultural products
- Total Factor Productivity (TFP) grew by 2% Per year between 1981-1990 - Negative after 1990
- Green revolution technologies fatigued with passage of time and gains could not be sustained
- Poor soil organic carbon (SOC) content - the biggest setback

These are some of the factors endangering food security in the country

INDIA’s RESPONSE

FOOD CHAIN


Input Suppliers
(Seeds, Fertilizers, Pesticides etc)
GAP & GMP
Farmers
GAP
Processors
GMP / HACCP
Wholesalers / Retailers
Consumer

ISSUES OF CONCERN

- Food Safety
- Traceability
- Environmental Awareness
- Workers Welfare

Food Safety Issues in Agriculture

- Contamination of microorganisms
- Mycotoxins - Aflatoxins
- Persistant organic pollutants - Dioxins, Pcbs
- Heavy Metals- Lead, Mercury, Cadmium
- Pesticide Residues
- Antibiotics
- Animal feed additives
- Agro-chemicals
- Bioterrorism – GMO?

Agriculture - Challenge in the 21st Century

- **How to make agricultural systems more Sustainable and Safe, in a world where food supply chains are ever more globalised?**

- **Good Agricultural Practices at farm level (GAP) can make a major difference**

GAP Components

GAP - Principles

- Restore consumer confidence in agricultural production
- Utilize the preventive food supply chain approach (traceability & backward integration)
- Applies the principles of HACCP
- Focuses on the management of farm activities
- Quality and Safe produce
- Efficient use of resources
- Care for the environment
- Welfare and safety of workers

GAP Standards

- **GLOBALGAP-IFA (Eurepgap)**

Respective Country Standards

- **CHINA GAP**
- **KENYA GAP**
- **CHILE GAP**
- **THAI GAP**

GLOBALGAP

- Global partnership for

  Safe and Sustainable Agriculture

- Pre-farm Gate Standard

AARA Response

AARA is a division of Agrasia Impex Pvt. Ltd., comprises of retired agricultural scientists with exceptional expertise in the field of crop management and GAP

GAP Implementation

Traceability and **Backward Integration** of the produce

Post-harvest Technology and Value Addition

Establishment of:

- Green Management School
- Field demonstration
- Farmers' Distress Call Centers

Generating Agriculture Risk Fund for natural Calamities

AARA
Agri Associates for Responsible Agriculture
Sustainable Agriculture - Safe Food

Experience of Chilli farmers of Konuru village

Why Konuru?

- Traditional Chilli belt
- Remotely located
- Small, Marginal and Responsive Farmers
- Irrigation facilities

Globalgap Protocol for Chilli

- Traceability
- Record keeping
- Internal Self Inspection
- Hygiene
- Choice of varieties
- Irrigation
- Fertilizers
- Crop Protection
- Harvesting
- Produce Handling

- Site History & Site Management
- Waste Re-cycling & Re-use
- Waste and Pollution Management
- Environmental Issues
- Workers' Health, Safety & Welfare
- Complaint Form/ Register

SYSTEM FOR TRACEABILITY AND BACKWARD INTEGRATION

A unique LOT number is generated for the Harvested produce for backward integration and traceability

For e.g. LOT Number: C1H500044F100001

Where,

- **C = Crop Chilli**
- **1 = Variety (Teja)**
- **H5 = Heat Value (50K - 60K)**
- **00044F = Farmer Code**
- **10 = Year of Harvest**
- **0001 = Auto generated No**

Search for LOT number

All the details of the farmer cultivation practices are obtained from LOT no to Plot No.

RECORD KEEPING AND INTERNAL SELF-INSPECTION

- **Basic requirement:**

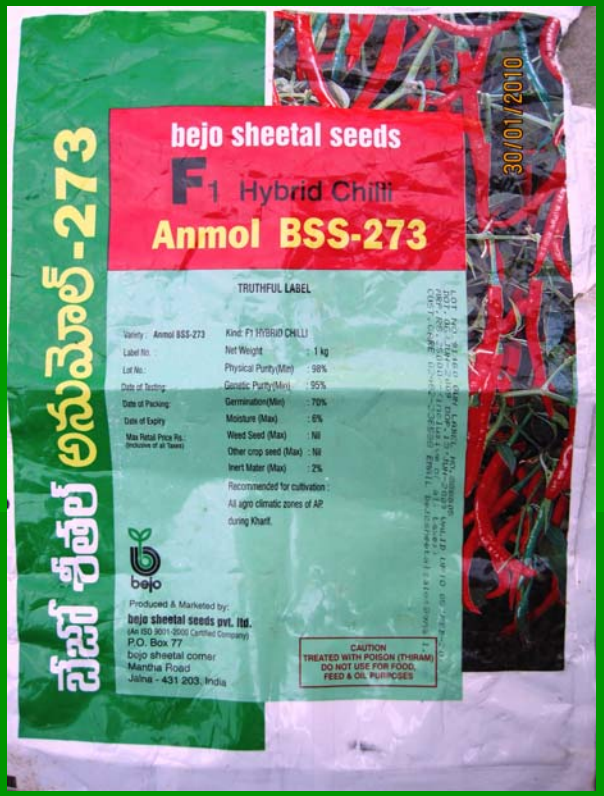
- maintenance of farm records for all plots and farm machinery

-every farmer has to get adopt to the system of keeping records

- **Land records: Gat.No/ Survey No., Pass book from Revenue department, Registration No. of the farm and any other agreement.**

SEED MATERIAL

- Seed labels and seed packing material should be retained for referring instructions.



- GMOs cannot be used unless there is approval from Government – none so far.

FERTILIZER STORAGE

- **Storage facility should be sound, covered, clean and dry.**
- **Fertilizers should not be kept along with fresh produce or plant propagation material, plant protection products.**
- **Maintenance of stock inventory essential.**
- Organic manures should be stalked at least 25 meters away from direct water sources and fresh produce.
- Risk analysis before procuring the organic manure is necessary.
- **Human sewage sludge should never be used on farm.**

Choice of PPPs

- Registered by Central Insecticide Board – recommended
- Chemicals banned in EU / destined country –not recommended
- Label recommendation or official registration body publication / APEDA / NRC / SAU for the target crop
- Label instructions
- Strategies to prevent development of resistance to pesticides

Application Equipment

- PPPs application machinery kept in good condition
- Calibration of application machinery carried out on a regular basis

Protective Clothing

- Complete set of protective clothing must be available and used at the time of application
- Protective clothing must be washed after use and dried at a designated place

Storage Facility For Protective Clothing

Pesticide Storage & Handling

Pesticide Storage & Handling

- Empty pesticide containers not reused
- Empty containers kept separately until disposal.
- Obsolete PPPs documented.

HARVESTING and PRODUCE HANDLING

- ❑ Documented procedure for hygiene risk analysis
- ❑ Training given to workers on personal hygiene.

Aspects checked:

- Personal cleanliness
- Clothing
- Hand washing
- Wearing of jewelry
- Fingernail length and cleaning
- Personal behaviour
- Smoking
- Spitting
- Chewing

- Hygiene instructions and procedures for handling produce i.e.; packers trained to prevent physical, microbiological and chemical contamination during product packing
- Containers and harvesting tools and equipment - cleaned and disinfected
- Transport vehicles - cleaned to prevent produce contamination (soil dirt, organic fertilizers, spills etc)
- Harvesters' access to clean toilets, hand wash facility (fixed/mobile equipment can be used within 500m distance)
- Containers - exclusively meant for produce handling

FINAL PRODUCE PACKING AT THE POINT OF HARVEST

- Produce packed and handled in the field not left overnight in field to prevent contamination
- Inspection process in place to ensure that the product packed is according to documented quality criteria of customer
- Packed produce protected from contamination in pack house

- ❑ Product storage clean and cleaning schedule documented
- ❑ Packing material used for packing must be protected from contamination during storage
- ❑ Packing material waste, left out waste removed from field/site
- ❑ Temperature and relative humidity maintained and documented in accordance with hygiene risk assessment results and quality parameters
- ❑ Potable water/ice used at point of harvest to prevent contamination

PERSONAL HYGIENE

- Basic instructions displayed
- Training given to produce handling operators
- Workers protective clothing (aprons, gloves, masks etc) cleaned prior and after use
- Designated area provided for smoking, eating, chewing and drinking
- Display of signs on hygiene at packing facilities

SANITARY FACILITIES

- Pack house workers provided access to clean toilets / hand washing facilities (use non perfumed soap, water to clean and disinfect hands and hand dry facilities).

- Instruction signs visible to the workers

- Facilities for changing clothes and secured locker facilities to keep workers personal belongings made available.

Access to animals

- Access to animals restricted.

QUALITY CONTROL

- Documented inspection procedure to ensure that product is packed according to quality standards
- Temperature and relative humidity controls maintained and documented wherever applicable
- Stock rotation managed to ensure product quality and safety

RODENT CONTROL

- ❑ All entry points (to buildings or equipment) suitably protected from rodents
- ❑ Bait / trap points notified in site plan
- ❑ Bait / trap points not accessible to non-target species
- ❑ Documentation of pest control inspections

Complaints Handling Mechanism

Customer Complaints to be responded/disposed off within 24 hours.

Responsibility: Customer Service Manager

Post-Harvest Washings and Treatments Not Applicable for Chilli

Barriers to implementation of GAP

Insufficient awareness of the impact of agricultural practices on:

- the environment
- climate
- social : worker welfare
- food safety

Common misconception in implementing GAP

- Identified with increasing cost
- Farms may comply but do not get premiums
- Voluminous record-keeping/ paperwork
- Buyer market is not guaranteed

In actual fact GAP contributes to:

- Increase in productivity
- efficient and effective use of agricultural inputs
- improved morale of workers
- Product safety and quality

Conclusion

- **Challenge - Feeding an additional 3 billion people by 2050 while preserving our natural resources - enormously complicated by climate change**

- **Strength - India has inherent comparative advantages :**

i. **Largest arable area in the world**
ii. **Rich biodiversity**
iii. **Manpower available**
iv. **Scope for special farm products**

- **For long-term sustainability, efforts should be to cover the entire farming gamut**

- **GAP provide an holistic approach to manage judiciously Soil, Water, Nutrition, Plant Protection, Harvesting, Produce Handling, Post Harvest Treatments, Packing, Workers Welfare, Safety, Hygiene, Environmental Conservation, Wild Life Conservation etc**

- GAP also take care of traceability & backward integration of the produce - important tools for facilitating export market

- Hence, recognizing GAP - key for sustainable development of agriculture and achieving food security and food safety

- A pilot project on the implementation of GlobalGAP in chillies has been taken up in Konuru village of Andhra Pradesh, India during Aug., 2009. The Inspection Process has been carried out by third certification body. The response of the farmers has been quite encouraging. It is possible to take up GlobalGAP in chillies on a large area.

AARA
Agri Associates for Responsible Agriculture

THANK YOU